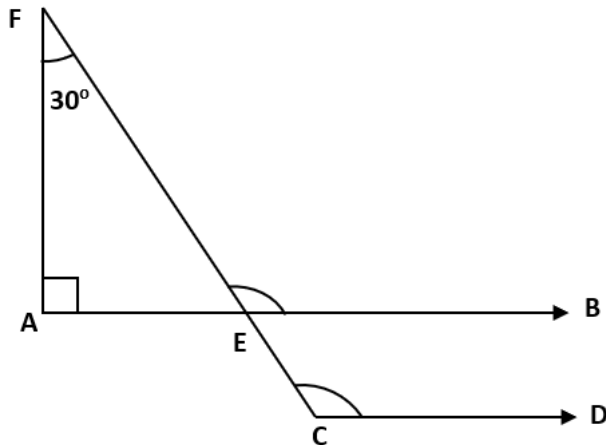


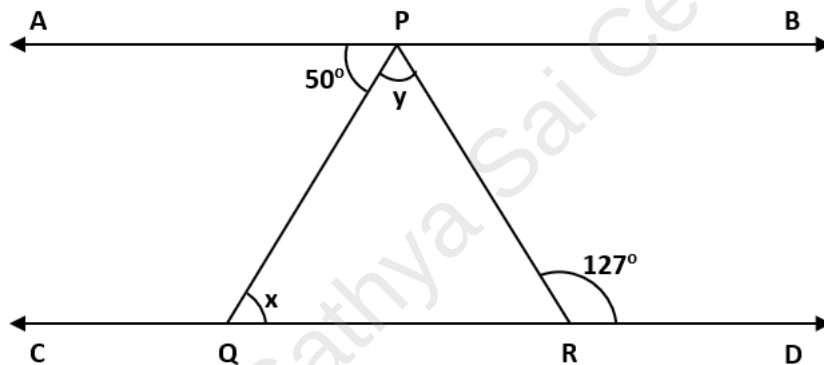


QA Angle Pairs Worksheet

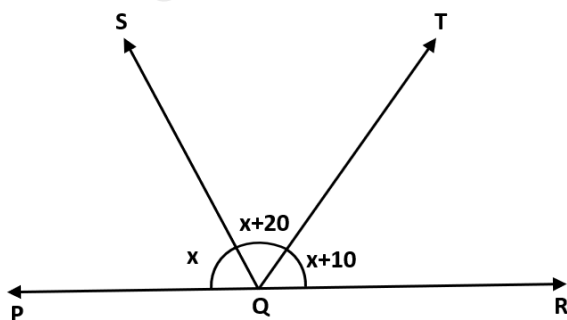
Q1) In the given figure, $AB \parallel CD$ and $\angle F = 30^\circ$. Find $\angle ECD$.



Q2) In the given figure, if $AB \parallel CD$, $\angle APQ = 50^\circ$ and $\angle PRD = 127^\circ$, find x and y .

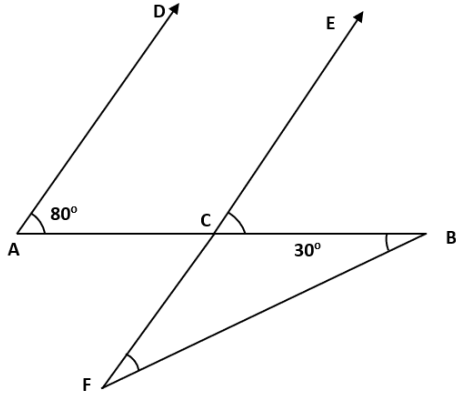


Q3) Find $\angle SQT$.

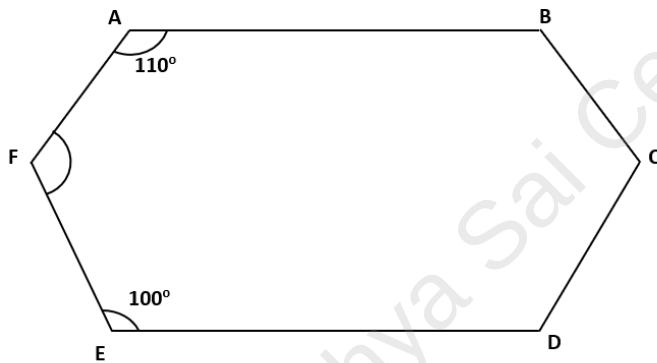




Q4) Find $\angle BFC$, if $AD \parallel CE$, $\angle DAB = 80^\circ$ and $\angle CBF = 30^\circ$.



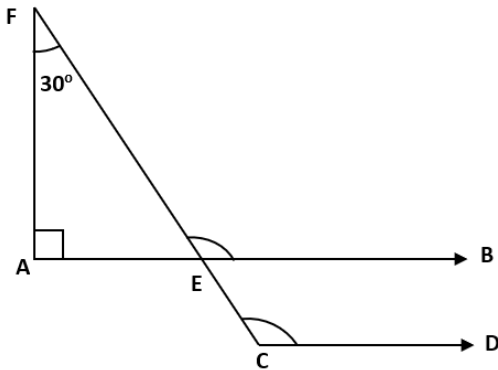
Q5) ABCDEF is a polygon, in which $AB \parallel ED$, $\angle A = 110^\circ$ and $\angle E = 100^\circ$. Find $\angle F$.





QA Angle Pairs Answer Key

Ans 1.



In $\triangle FAE$,

$$\angle F + \angle A + \angle FEA = 180^\circ \text{ (Angle Sum Property)}$$

$$\angle FEA = 180^\circ - \angle F - \angle A$$

$$\angle FEA = 180^\circ - 30^\circ - 90^\circ = 60^\circ$$

$$\angle FEA + \angle FEB = 180^\circ \text{ (Linear Pair)}$$

$$\angle FEB = 180^\circ - \angle FEA$$

$$\angle FEB = 180^\circ - 60^\circ = 120^\circ$$

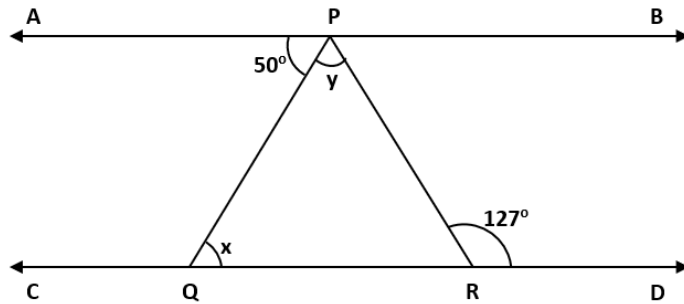
Since $AB \parallel CD$ and EC is transversal

$$\angle ECD = \angle FEB \text{ (Corresponding angles)}$$

$$\angle ECD = 120^\circ$$



Ans 2.



Since $AB \parallel CD$ and PQ is transversal

$\angle x = 50^\circ$ (alternate interior angles)

$\angle PRQ + \angle PRD = 180^\circ$ (Linear Pair)

$$\angle PRQ = 180^\circ - \angle PRD$$

$$\angle PRQ = 180^\circ - 127^\circ = 53^\circ$$

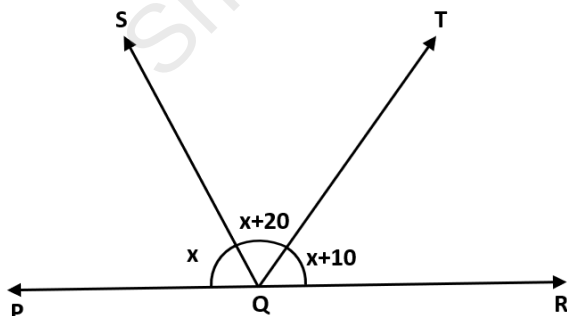
In $\triangle PQR$,

$\angle QPR + \angle PQR + \angle PRQ = 180^\circ$ (Angle Sum Property)

$$\angle y = 180^\circ - \angle PRQ - \angle PQR$$

$$\angle y = 180^\circ - 53^\circ - 50^\circ = 77^\circ$$

Ans 3.



$\angle PQS + \angle SQT + \angle TQR = 180^\circ$ (Linear Pair)

$$x + (x + 20^\circ) + (x + 10^\circ) = 180^\circ$$



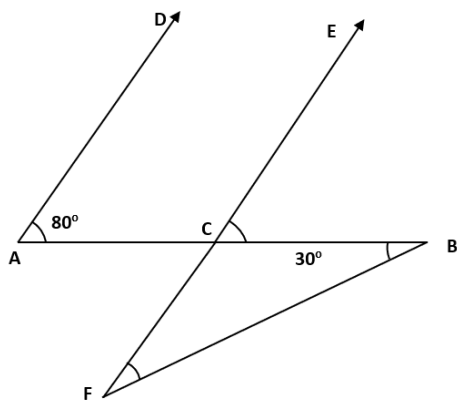
$$3x + 30^\circ = 180^\circ$$

$$3x = 180^\circ - 30^\circ = 150^\circ$$

$$x = 50^\circ$$

$$\angle SQT = x + 20^\circ = 50^\circ + 20^\circ = 70^\circ$$

Ans 4.



Since $AD \parallel CE$ and AC is transversal
 $\angle ECB = 80^\circ$ (corresponding angles)

$$\angle ECB + \angle FCB = 180^\circ \text{ (Linear Pair)}$$

$$\angle FCB = 180^\circ - \angle ECB$$

$$\angle FCB = 180^\circ - 80^\circ = 100^\circ$$

In $\triangle FCB$,

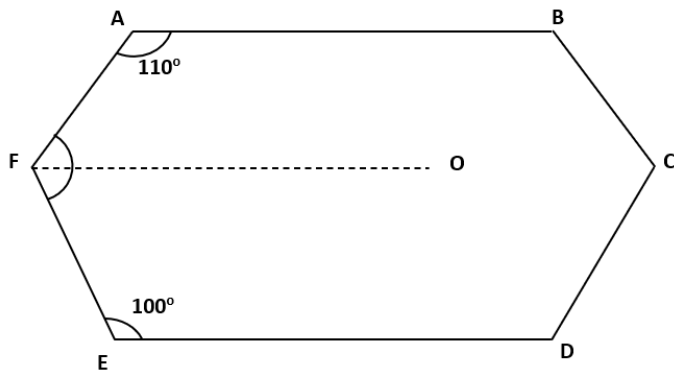
$$\angle FCB + \angle CBF + \angle BFC = 180^\circ \text{ (Angle Sum Property)}$$

$$\angle BFC = 180^\circ - \angle FCB - \angle CBF$$

$$\angle BFC = 180^\circ - 100^\circ - 30^\circ = 50^\circ$$



Ans 5.



Construction: Draw FO parallel to AB.

Since $AB \parallel FO$ and AF is transversal

$\angle FAB + \angle AFO = 180^\circ$ (angles on the same side of the transversal are supplementary)

$$110^\circ + \angle AFO = 180^\circ$$

$$\angle AFO = 180^\circ - 110^\circ = 70^\circ$$

$\angle FED + \angle EFO = 180^\circ$ (angles on the same side of the transversal are supplementary)

$$100^\circ + \angle EFO = 180^\circ$$

$$\angle EFO = 180^\circ - 100^\circ = 80^\circ$$

$$\text{Hence, } \angle AFE = \angle AFO + \angle EFO = 80^\circ + 70^\circ = 150^\circ$$